



# SCHSM

Southern California Home Shop Machinists

October 5, 2019

## OFFICERS

President	Charlie Angelis
Vice President	Michael Vulpillat
Secretary	Ron Gerlach
Treasurer	Jim Endsley

## COMING EVENTS

Nov Meeting  
 Sat, Nov 2, 2019, 2:00 p.m.  
 El Camino College

Little Machine Shop Open House  
 Oct 12, 2019, 11:00 a.m. to 3:00 p.m.  
 Pasadena

## PREFACE -

The October meeting of the Southern California Home Shop Machinists was called to order at 2:00 p.m. on Saturday, October 5, 2019. We met in classroom AJ115 on the first floor of the Industry and Technology Building at El Camino College in Torrance, California. There were 22 members in attendance.

## CLUB BUSINESS –

Charlie called the meeting to order and checked for new members. There were none, so he moved on to other business. First up was Willie Jordan with another reminder about the Little Machine Shop Open House. The actual event goes from 11am to 3pm on Saturday, October 12th but he would like to get members to arrive earlier, around 9:00 to 9:30 to help set up.

Eldon gave us a quick summary of the Westec show, that was held September 24th through the 26th in Long Beach. He described the relative popularity of 3D machining centers at this year's show. Also of interest, was an assortment of stickers found at the Burr King booth.

One example is shown here. He also described a 5 axis milling machine with a 39,000 RPM air cooled spindle that was spewing sparks as it machined away.



Eldon also spoke of the email he and a couple other club members received from Jim Kreter. Unfortunately, due to some medical issues, Jim has decided to no longer engage in foundry activities. His home shop had been the center of several metal casting events involving some club members. His casting supplies and equipment will be moved to Ron Gerlach's home shop in Orange County where it will continue to be available for club members. We are all sad to hear that he has come to a decision like this, but we trust he is doing what is best for his welfare.

## PRESENTATIONS –

Millar Farewell  
 –Harbor Freight Tool Repairs–  
 Millar had two different appearing Harbor Freight angle grinders that had virtually identical innards. Not surprisingly, both had the same problem. They both operated





intermittently when the power chord was moved around. Both were diagnosed with the same problem of a broken wire at the rear of the tools where the power chord entered the motor



body. Apparently, the clamps holding the wires were just too small and severely deformed the chord underneath resulting in broken wires. His fix was to merely cut off the chord at about the entry point, strip a fresh length wire and to crimp on new lugs.



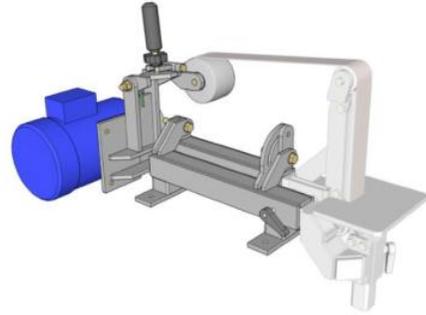
Before replacing the clamp, he filed out a bit of material under the clamp piece.

Millar also showed us a picture of all the HR steel parts that he plasma cut to make a 2X72" belt sander. This was being built from a set of plans provided (for \$20) by Jerry Schmidt who is a

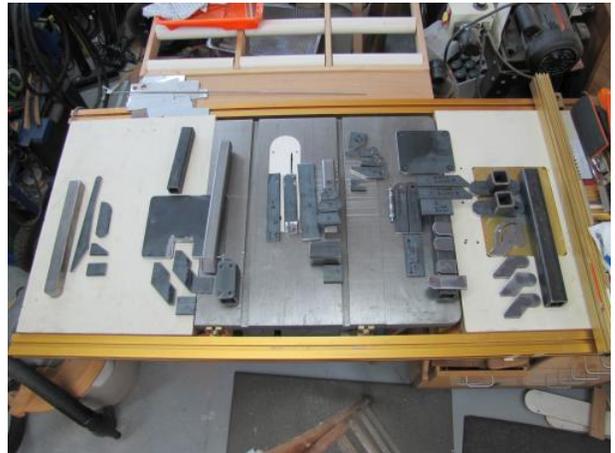
young Youtube video publisher. A 3D CAD image he showed gave a good representation of the final product. It will be interesting to see how these

## 2x72" tilting belt grinder

Plans to build the "power unit"

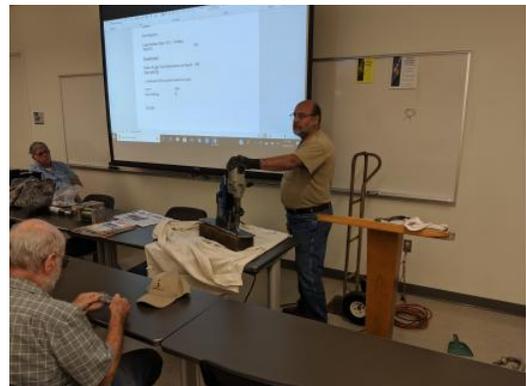


numerous small steel parts will come together to create the actual sander.



This segued into a discussion of a new Amada laser cutting machine that Long Beach City College received as a donation and is currently being installed. This machine is a beast and will be able to cut 1" thick steel. The bed is some 35' long so it will be able to handle some very large projects. Millar will have access to this machine in the future.

Frank Schettini –Hougen Mag Drill–  
Frank brought in his mag drill to demonstrate to the club. His is made in America by a company called



Hougen. It is a model 904 and like most other mag drills it uses carbide annular cutters. It is an essential tool for folks who work out in the field and frequently need to drill sizable holes in steel.

Electrical System	115V, 50/60 Hz, 1035W	
Motor	8A (115V), 450 RPM	
Diameter	7/16" - 1-1/2" (12mm - 38mm)	
Depth	2" (50mm)	
Cutter/Mount	"12,000-Series" & Copperhead™ & Fusion™ cutters, 3/4" shank	
Twist Drill Capacity	1/2" w/ drill chuck	
Tapping Capacity	1/2" w/ tapping unit	
Dimensions	19-5/8" H x 7-3/4" W x 11-5/8" L (499mm H x 197mm W x 295mm L)	
	Base 3-1/8" W x 6-9/16" L (79mm W x 167mm L)	
	1" Plate (25mm)	Dead Lift 1750 lb. (794 kg)
		Drillpoint Breakaway 995 lb. (433 kg)
Magnet	3/8" Plate (9.5mm)	1310 lb. (594 kg)
		710 lb. (322 kg)
Weight	28.9 lb. (13.1 kg) • Shipping 43 lb. (19.5 kg)	

\*All drills include carrying case, operator's Manual, pint of coolant, safety chain & hex wrenches.

A nice feature about this model is the reversible handle so right or left handed operators can easily be comfortable in its use. He showed a training video from the company and then



demonstrated by drilling (cutting) what was approximately a 3/4" diameter hole in a steel plate that was at least 3/8" thick. It did this effortlessly in about 30 seconds. He passed around a 9/16" cutter that he had to remove from the machine due to a chipped cutting edge.



## SHOW and TELL

Norm Wells brought in a variety of goodies to share with the group. First off, he had a USB flash drive with a Windows 10 upgrade downloader. It could be used by anyone with a valid but older version of Windows that had missed the free upgrade period. One of the members took the drive. Presumably, he will use the drive and bring it back to the next meeting to share it with another member. Next items up for Norm were real tools made of steel. The first two were his version of bandsaw blade grinding and welding fixtures. He brought these to



show in response to last month's presentation by Dan Snyder of his version of the same tool. The next item was intriguing. It was a vertical 5C collet closer that he actually found in a trash can.



There was also a nice American made collet in the closer at the time he found it. He was asked how he managed to find this nice tool in a trash can but there was no clear answer. To improve the tool, Norm added an additional plate to make it mountable in the Horizontal position as well as the original Vertical mounting.

Last but by no means least, and clearly this authors favorite, was a home brew key slot cutter for internal key ways. The beauty of this device was that it was simple, relatively easy to make and replaced a much more expensive broach. He, like many of us at one time or another, was faced with a need to cut a single



keyway and could not justify the cost of the appropriate broach. What he made was an adjustable cutter using a piece of CR steel, a chunk of High Speed Steel and a set screw. Basically, he just had to force the tool multiple times through the ID of the part, while adjusting the depth of cut each time with the set screw. The first time with the tool he had the HSS cutter set up with a positive back rake but the tool just dug into the work. He then reversed the HSS tool bit in the slot so it presented a slight negative rake to the bore and it worked beautifully. It was not clear how many passes it would take to cut a typical keyway but when you have a job that needs to be finished and you do not have the correct size broach, it would get the job done a whole lot cheaper and quicker than ordering a broach. Note that the rubber O-ring in the photo was there to just hold the HSS cutter in the groove for storage.

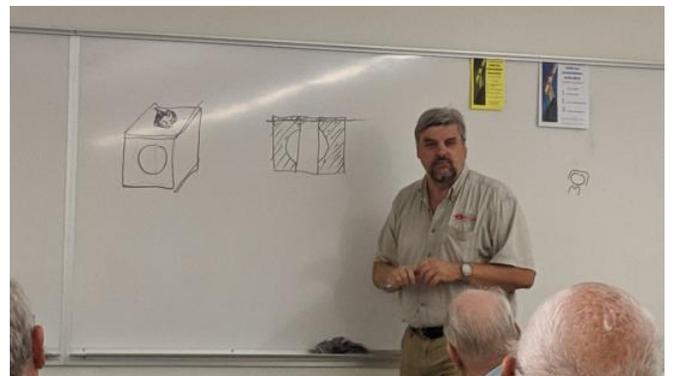
Bob Heil brought in a couple of linear actuators that have been sitting around his shop for some 20 years. He finally came to the revelation that if he had not used them in this time he was probably not going to use them. One was electric with a 6.5" range, powered by a 110VAC 1/8Hp gear motor. The other was pneumatic with a 3" range. He had hoped there would be a figurative fight over who would take each one but as it turned out there was a lukewarm response from the attending club members. He finally got two members to each take one. We will no doubt see these again in the future, perhaps on the annual auction day.

John Miller got up and talked about his trip to Idaho in which he stopped off on the way to a town called Ely, Nevada. It is the home of the Nevada Northern Railway Museum. This is more than a simple museum. They maintain and repair steam locomotives at this facility. John got to hangout in the shop with some of the mechanical staff. Though warned initially to not touch anything, he soon wore them down and was allowed to get closer and to even help out with some tasks. He shared a variety of photos of items that were being refurbished in the shop such as bronze bearings. They had a very big horizontal boring mill that they were using to modify a bearing at the time.



After all the locomotive pictures he showed one shot of the motive behind his trip to Idaho. He managed to bag himself a nice sized antelope. Notice that it's in an alfalfa field. The Farm Manager was only too glad to sign a permission slip to allow John to hunt on his property. The antelope were plentiful and were literally eating into profits. There was a meat processing plant not far from where he made his kill so he was able to have it dressed. He explained that the meat tastes a bit gamey.

Michael Vulpilat discussed something that he saw and was intrigued with at WESTEC. It was a CNC friction stir welding machine made by Mazak. It utilized a 3000RPM spindle and some controlled downward pressure to create a small weld puddle. Sensors in the spindle tip use Bluetooth communication to relay temperature and pressure as the CNC guided table/spindle move the



spindle tip along the prescribed path to be welded. It resulted in a very small heat effected zone. They had a complex aluminum cube assembly that consisted of a rod pressed into a hole with an intervening inspection hole drilled at 90 degrees. The rod was welded into place and then a light machine cut was made across the top surface which resulted in what appeared to be a totally homogeneous surface with no tell-tell signs of the welding process remaining.

Don Huseman discussed a 1" thick grinding wheel he purchased for \$13. It had a 1" ID center hole and he needed to adapt down for his ½" OD grinder shaft. He was offered many suggestions including home built adapters made out of aluminum or lead as well as commercially available plastic adapters.

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SCHSM welcomes presentations by members or guest speakers on any subject related to metal working activities. If you have some knowledge or experience you feel may be of interest to our members, or if you know someone that may have something interesting to relate, please consider making a presentation at a meeting. Presentations may be a little longer and more detailed than a show and tell, and may be accompanied by slides, video, or physical displays. Probably every member has some experience they can share, and this is the purpose of SCHSM. Please contact President Charlie Angelis to make arrangements to give a presentation.

SCHSM meets in Classroom AJ115 on the first floor of the Industry and Technology building of El Camino College, 16007 Crenshaw Blvd. Torrance, California, at 2:00 p.m. on the first Saturday of every month. The building is near Parking Lot B. Enter the campus from Manhattan Beach Blvd.

If you would like to contribute an article to this newsletter, or make a comment, contact the editor, Fred Bertsche. He can be reached via the SCHSM Yahoo Group, or at [fbschsm@yahoo.com](mailto:fbschsm@yahoo.com).

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